SLA5059

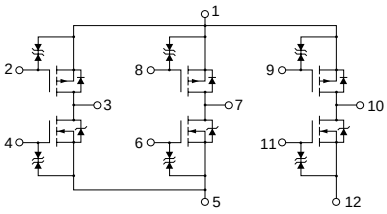
N-channel + P-channel
3-phase motor drive

External dimensions Ⓑ ··· SLA (12-pin)

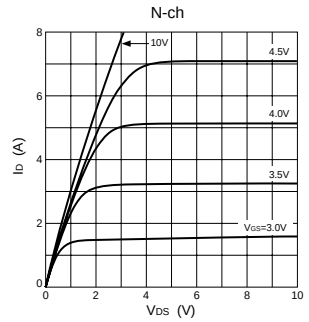
Absolute maximum ratings

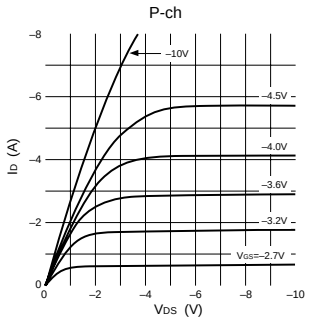
Symbol	Ratings		Unit
	N channel	P channel	
		∓	
I_D	4	–4	A
$I_{D(pulse)}$	8 (PW≤1ms, Duty≤25%)	–8 (PW≤1ms, Duty≤25%)	A
P_T	5 (Ta=25°C, with all circuits operating, without heatsink)		W
	30 (Tc=25°C, with all circuits operating, with infinite heatsink)		W
$\theta_{j\text{-}a}$	25 (Junction-Air, Ta=25°C, with all circuits operating)		°C/W
$\theta_{j\text{-}c}$	4.17 (Junction-Case, Tc=25°C, with all circuits operating)		°C/W
Tch	150		°C
Tstg	–40 to +150		°C

■Equivalent circuit diagram

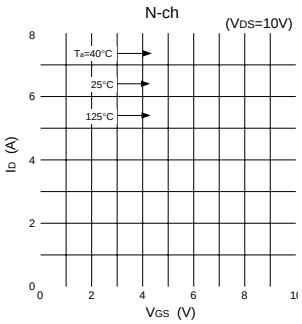


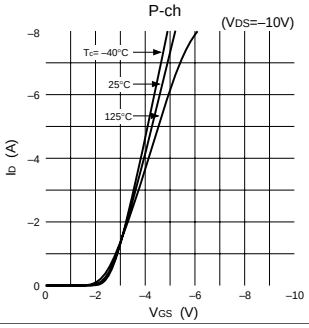
I_D-V_{DS} Characteristics (Typical)



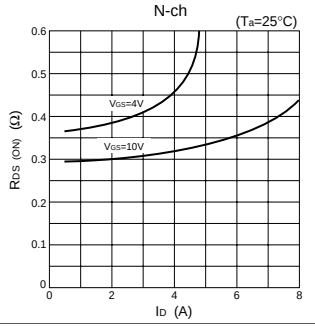


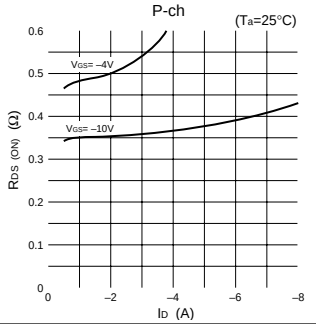
I_D-V_{GS} Characteristics (Typical)



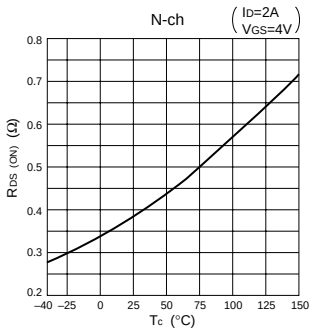


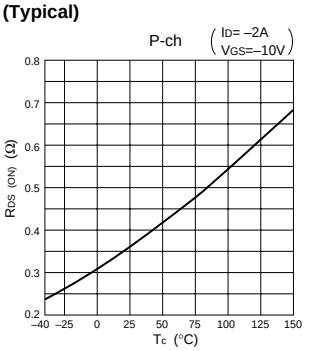
$R_{DS(ON)}$-I_D Characteristics (Typical)





$R_{DS(ON)}$-T_C Characteristics (Typical)



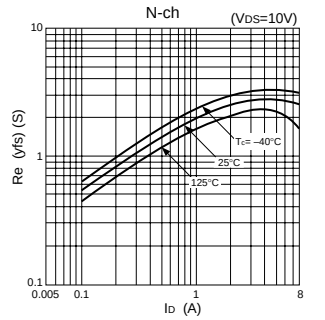


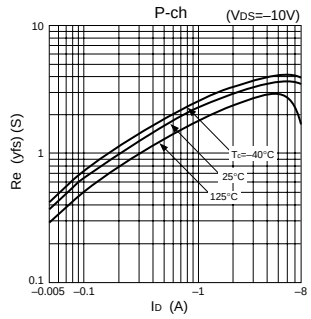
Electrical characteristics

(T_a=25°C)

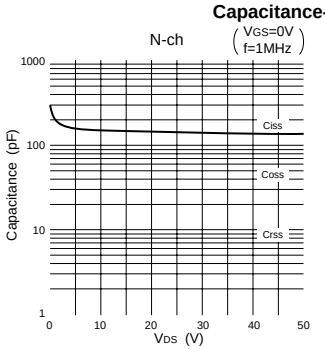
Symbol	N channel					P channel				
	Specification			Unit	Conditions	Specification			Unit	Conditions
	min	typ	max			min	typ	max		
$V_{(BR)DSS}$	60			V	I_D=100μA, V_{GS}=0V	–60			V	I_D=–100μA, V_{GS}=0V
I_{GSS}			±10	μA	V_{GS}=±20V			∓	μA	V_{GS}=∓
I_{DSS}			100	μA	V_{DS}=60V, V_{GS}=0V			–100	μA	V_{DS}=–60V, V_{GS}=0V
V_{TH}	1.0		2.0	V	V_{DS}=10V, I_D=250μA	–1.0		–2.0	V	V_{DS}=–10V, I_D=–250μA
$Re_{(yfs)}$		2.5		S	V_{DS}=10V, I_D=2A		3		S	V_{DS}=–10V, I_D=–2A
$R_{DS(ON)}$			0.55	Ω	V_{GS}=4V, I_D=2A			0.55	Ω	V_{GS}=–10V, I_D=–2A
Ciss		150		pF	V_{DS}=10V, f=1.0MHz, V_{GS}=0V		320		pF	V_{DS}=–10V, f=1.0MHz, V_{GS}=0V
Coss		70		pF			130		pF	
Crss		15		pF			40		pF	
$td_{(on)}$		12		ns	I_D=2A, V_{DD}≒ R_L=10Ω, V_{GS}=5V, see Fig. 3 on page 16.		20		ns	I_D=–2A, V_{DD}≒ 20V, R_L=10Ω, V_{GS}=–5V, see Fig. 4 on page 16.
t_r		40		ns			95		ns	
$td_{(off)}$		40		ns			70		ns	
tf		25		ns			60		ns	
V_{SD}		1.2		V	I_{SD}=4A, V_{GS}=0V		–1.1		V	I_{SD}=–4A, V_{GS}=0V
t_{rr}		75		ns	I_{SD}=2A, V_{GS}=0V, di/dt=100A/μs		75		ns	I_{SD}=–2A, V_{GS}=0V, di/dt=100A/μs

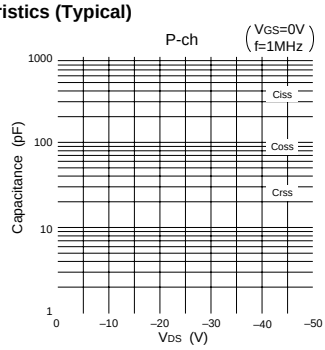
$Re_{(yfs)}$-I_D Characteristics (Typical)



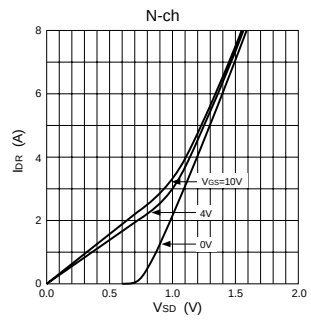


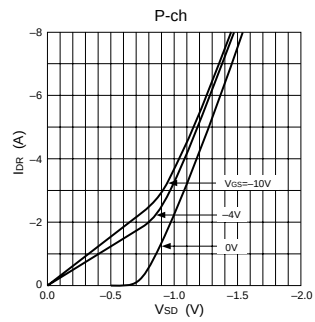
Capacitance-V_{DS} Characteristics (Typical)



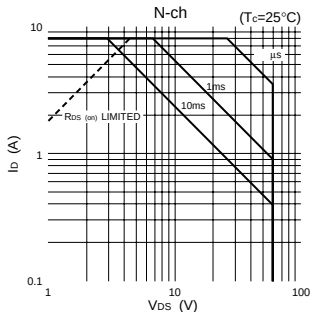


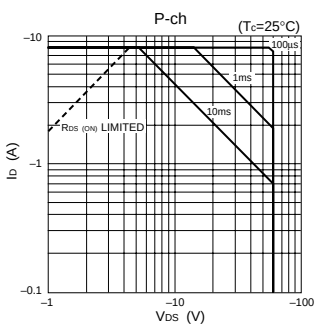
I_{DR}-V_{SD} Characteristics (Typical)



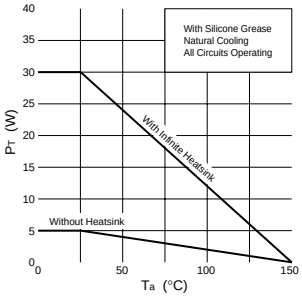


Safe Operating Area (SOA)

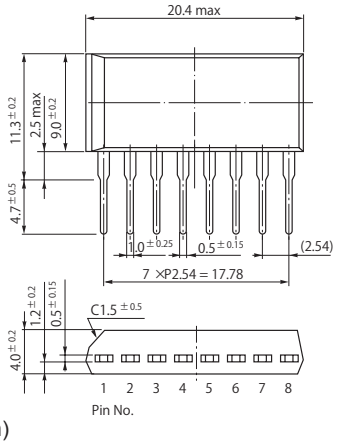




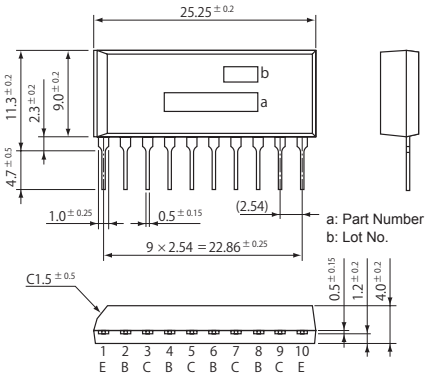
P_T-T_a Characteristics



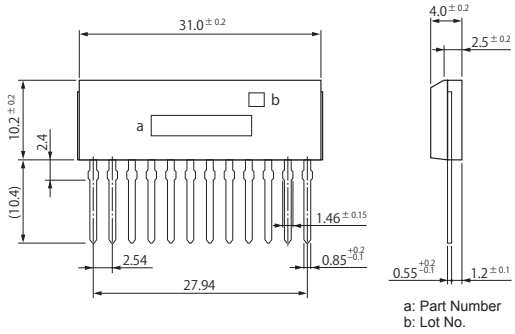
• SIP 8 (STA8Pin)



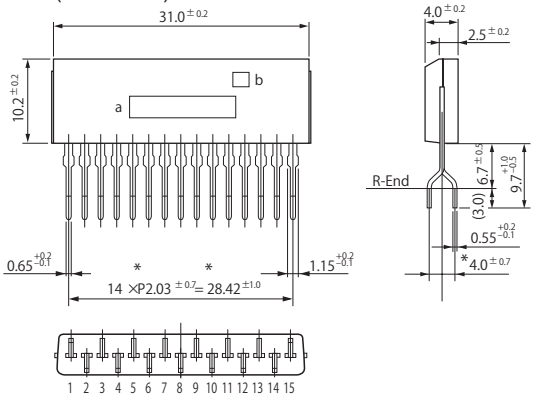
• SIP 10 (STA10Pin)



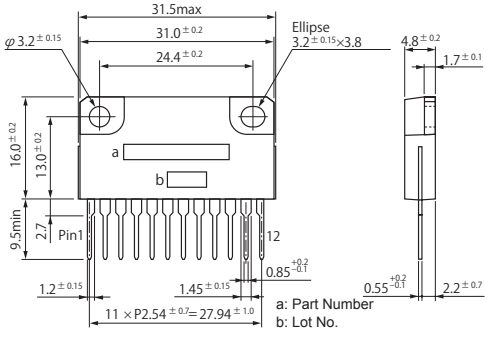
• SIP 12 (SMA12Pin)



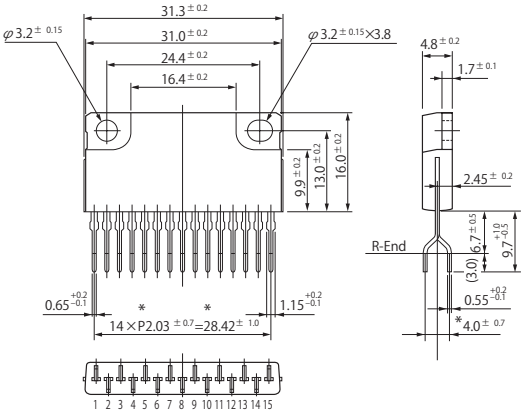
• SIP 15 (SMA15Pin)



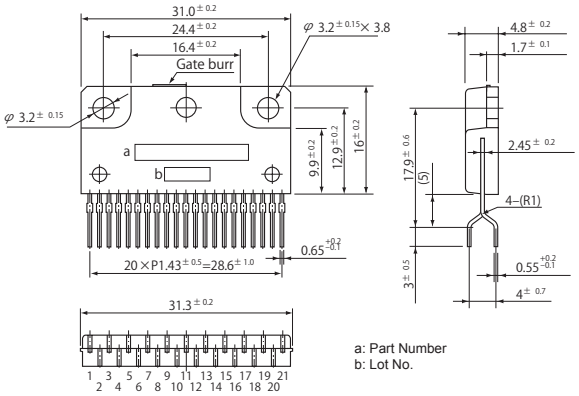
• SIP 12 with Fin (SLA12Pin)



• SIP 15 with Fin (SLA15Pin)



• SIP 21 with Fin (SLA21Pin)



(Unit:mm)